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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/884,044	06/27/97	ANDREAS S	2871US

LM02/0405

SANJAY PRASAD
FENWICK & WEST
TWO PALO ALTO SQUARE SUITE 700
PALO ALTO CA 94306

EXAMINER	
NGUYEN, T	
ART UNIT	**PAPER NUMBER**
2772	9

DATE MAILED: 04/05/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)
08/884,044	Schilling; Knittel
Examiner	**Group Art Unit**
Thu Nguyen	2772

☒ Responsive to communication(s) filed on *Mar 8, 1999* .

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *three* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) *1-15, 25-28, 34, and 54-57* is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1-15, 25-28, 34, and 54-57* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐approved ☐disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____ .

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____ .

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). *5 & 6*

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

Election/Restriction

1. Claims 16-24, 29-33 and 35-53 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b) as being drawn to a non-elected species. Election was made without traverse in Paper No. 8.

Claim Objections

2. Claims 8, 10 are objected to because of the following informalities:

In claim 8, line 5, and claim 10, line 5, the claimed detail "two offsets" is ambiguous. "What does offset means?" does it mean the offset address from a texel to the first texel of the mipmap? If so it just has one offset. The detail is disclosed in page 19, lines 10-16. However, the detail is not quite clear.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

4. Claims 1-3, 5-7, 13, 25-26 and 54-55 are rejected under 35 U.S.C. 102(e) as being anticipated by Tarolli et al (U.S Patent No. 5,831,624).

As per claim 1, Tarolli et al teaches a method for mapping texture onto a surface. The method comprises the steps of :

Approximating a true pixel color by performing a number of texture operations. The texture operations is determined by a geometric shape of a projection of a pixel on the texture (col. 3, lines 38-45); and averaging the results of the texturing operations (col.3, lines 57-62).

As per claim 2, Tarolli et al teaches accessing a mipmap; and when there are multiple mipmap accessing, performing interpolating the results of the accesses (col. 3, lines 45-67 and col.4, lines 1-16).

As per claim 3, Tarolli et al teaches a power of two number of texturing operations (col.2, lines 46-59).

As per claim 5, Tarolli et al teaches that the texture represents reflected environment (col.1, lines 64-67).

As per claim 6-7, 25-26, Tarolli et al does not explicitly teach modifying specularly reflected light intensity by combining the reflected light intensity with a specular coefficient; and retrieving the specular reflectance coefficient from a specular reflectance coefficient map associated with the surface. However, the claimed concepts would have been well known to a person of ordinary skill in the art at the time the invention was made.

As per claim 13, Tarolli et al teaches a device for generating texture map which includes a memory unit 312C (fig.4) for storing texture map; and an arithmetic unit for generating the texture map (col.6, lines 49-67);

As per claim 54-55, refer to discussion in claim 1, 2 above. The claimed system is the extent of the claimed methods above.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 4, 14-15 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tarolli et al (U.S Patent No. 5,831,624).

As per claim 4, Tarolli et al does not explicitly teach that the number of texture operations is less than or equal to a predetermined limit. However, it would have been obvious to a person of ordinary skill in the art at the time the invention was made that the number of operation must be a limited number, because if it is not limited, the process would never end and texture mapping process never completed.

As per claim 14-15, 34, Tarolli et al teaches prefiltering images of less detail and performing filtering (col.2, lines 46-59 and col.5, lines 8-23). Tarolli et al does not explicitly teaches performing filtering previous half-frame. However, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to perform filtering the previous half frame in order to ensure the texture value produced from the step of prefiltering ready for the step of filtering.

7. Claims 8-12, 27-28, 56-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tarolli et al (U.S Patent No. 5,831,624) in view of Chelstowski et al (U.S Patent No. 5,461,712).

As per claim 8, Tarolli et al teaches generating a detail map (col.2, lines 46-54).

Tarolli et al does not teach assigning a pointer into the detail map to at least one of the texture element to generate a pointer map.

However, Chelstowski et al teaches assigning a pointer into the detail map to at least one of the texture element to generate a pointer map (fig.5; col.6, lines 29-50; col.7, lines 7-11 and

lines 42-52). Refer to discussion in claim objection above for the claimed offset value, Chelstowski et al does not teach that each pointer comprises two offsets. However, Chelstowski et al teaches that individual texels can be addressed by shifting the coordinate of the texel by a fixed number of bits (col.5, lines 25-40 and col.15, lines 16-21). It would have been obvious to a person of ordinary skill in the art at the time the invention was made that in order to obtain the texel by shifting the bit value, the value stored must be the have certain offset coordinate value from the first texel of the mipmap.

Tarolli et al and Chelstowski et al are combinable because they are from a similar problem solving area, viz., texture mapping. It would have been obvious to a person of ordinary skill in the art to combine storing the mipmap and assigning pointer to each mipmap of Chelstowski et al with generating different LOD of Tarolli et al to obtain the invention as specified in the claim . The motivation for doing so would have been to provide more faster access to the mipmap.

As per claim 9, Tarolli et al teaches organizing the detail maps as mipmap (col.2, lines 60-66).

As per claim 10, Tarolli teaches determining a texture address and a level of detail (col.6, lines 59-67); accessing the detail map (col.7, lines 1-6); interpolating the results of detail map accessing (col.4, lines 5-12);

Tarolli et al does not teach retrieving offset from the pointer map; using the offset as detail map address; and mapping the texture map and the detail map to a surface. However, Chelstowski et al teaches accessing the texture maps by shifting the coordinate of the texel by a fixed number of bits (col.5, lines 25-40 and col.15, lines 16-21). It would have been obvious to a person of ordinary skill in the art at the time the invention was made that in order to obtain the texel by shifting the bit value, the value stored must be the have certain offset coordinate value from the first texel of the mipmap. Further, mapping the texture map and detail map to a surface would have been well known to a person of ordinary skill in the art at the time the invention was made.

As per claim 11-12 since Tarolli et al teaches both detail maps and texture maps, he inherently teaches detail map and texture map operation as claimed. Further, since Tarolli et al and Chelstowski et al teaches a method for improving the speed of texture mapping. Since the speed is fast the combination of Tarolli et al and Chelstowski et al would be able to carried out in real time.

As per claim 27, Chelstowski et al does not teaches assigning a pointer to each element of the texture map. However, assigning a pointer into the detail map to at least one of the texture element to generate a pointer map (fig.5 and col.6, lines 29-50 and col.7, lines 7-11 and lines 42-52) and the texture maps are stored two dimensionally (col.15, lines 15-27), it would have been obvious to a person of ordinary skill in the art at the time the invention was made that assigning a

pointer to each element of the texture map is a modification of Chelstowski et al teaching, because with the address of the first pointer and the offset of an element of the texture map, the address of each element taught by Chelstowski can easily be found; and the function of a pointer is just to keeps the address of a memory location .

As per claim 28, refer to discussion in claim 13 above.

As per claim 56-57, refer to discussion in claim 9-10 and 14 above. The claimed system is the extent of the claimed methods above.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

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or faxed to:

(703) 308-9051, (for formal communications intended for entry)

Or:

(703) 308-6606 (for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thu Nguyen whose telephone number is (703) 306-9130. The examiner can normally be reached on Monday-Thursday from 8:00 am to 5:00 pm ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Powell, can be reached on (703) 305-9703. The fax phone number for this Group is (703)308-6606 .

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703)305-3900.

NTV

March 26, 1999

MARK R. POWELL
SUPERVISORY PATENT EXAMINER
GROUP 2700